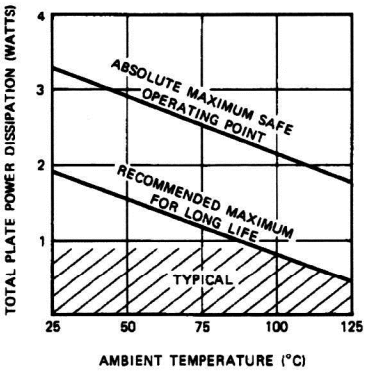
User's Guidelines

STEP 1

Determine the plate power dissipation from the circuit of the vacuum tube to be replaced. Use the highest ambient temperature in which the FETRON is expected to operate. Check the chart to ensure that the maximum safe operating point is not exceeded. The recommended maximum shown on the chart is established for a median lifetime of 300,000 hours (34 years).



STEP 2

In series filament circuits, short circuit the filament socket pins (Nos. 3 and 4) and place a 39 Ω, 2 W resistor in series at a convenient location in the filament string. (Special FETRONS with pins 3 and 4 internally short-circuited can be supplied. Consult factory representative).

STEP 3

Check the plate load resistance. If it exceeds 5000Ω select Fetron type TS6AK5/A2.

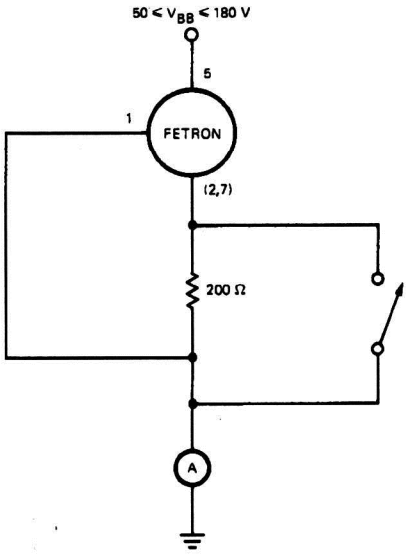
STEP 4

Check the grid circuit AGC and cathode bias resistor. The FETRON should not be used with positive grid-to-cathode bias or in class C operation wherein grid-to-cathode peak positive bias exceeds +1.0 volts. If AGC bias voltage developed in the receiver exceeds −5.0 volts, it is recommended that AGC bias be divided down to −5.0 volts maximum.

How to Test FETRONS

The recommended equipment for testing FETRONS is a vacuum tube or semiconductor curve tracer, such as the Tektronix Model 575. Some mutual-transconductance type tube testers, such as the Hickok Model 539C or 752A, may be used with caution for limited testing but **DO NOT TEST FOR SHORTS OR GASSY TUBES. DO NOT TEST A FETRON WITH AN EMISSION TYPE TUBE TESTER UNDER ANY CIRCUMSTANCES.** Factory warranties are void for all FETRONS tested in such manner.

If a suitable test method is not available, the simple circuit below may be used.



(A) Open the switch. Read cathode (plate) current, I_O. Interpret grid voltage from the formula: $V_G = I_O \cdot 200$.

(B) Close the switch and read cathode (plate) current, I_C.

(C) Interpret transconductance from the formula:

$$g_m = \frac{\Delta I_P}{\Delta V_G} \simeq \frac{I_C - I_O}{V_G} \simeq .005\left(\frac{I_C}{I_O} - 1\right), \text{ m Mhos}$$

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